

## Multi-Echelon Readiness Based Sparing

Background

ME-RBS Concept

Single National Inventory

MAWG Action Item

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## Demand Based Sparing

### ➤ **Fleet Logistics Supply Improvement Program (FLSIP)**


- Stocked on board if failure expected to occur in 4 years
- Based on Engineering estimates initially
- Updated with actual 3M maintenance usage data

### ➤ **MOD- FLSIP ...**

- POM 83 Initiative ... fix high C3/C4 CASREP rate
- Lowered demand criteria to 1 in 10 on critical systems

### ➤ **.5 FLSIP+ ...**

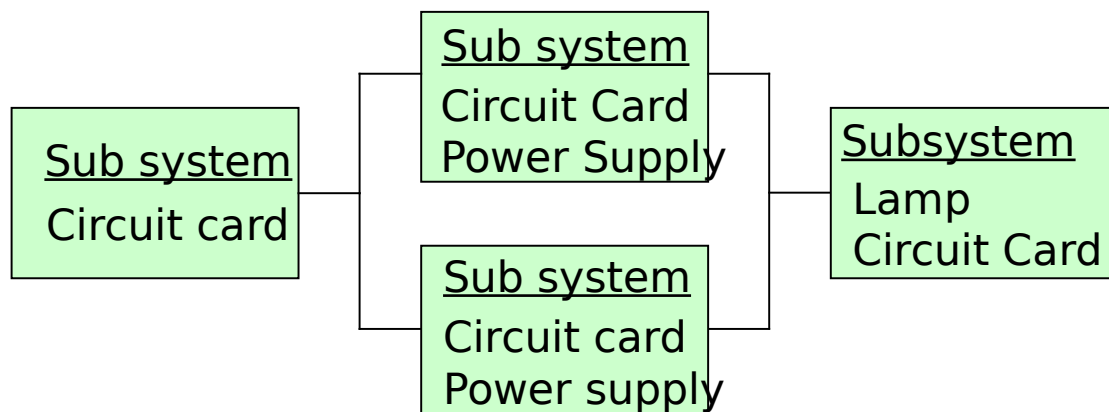
- DMRD 981 initiative
- Lowered demand criteria to 1 in 2 years plus add backs based on class maintenance and critical demands (3M & CASREP)

A light blue cloud with a black outline and a drop shadow.

***All driven by expected  
failure  
rate/experienced  
usage rates***

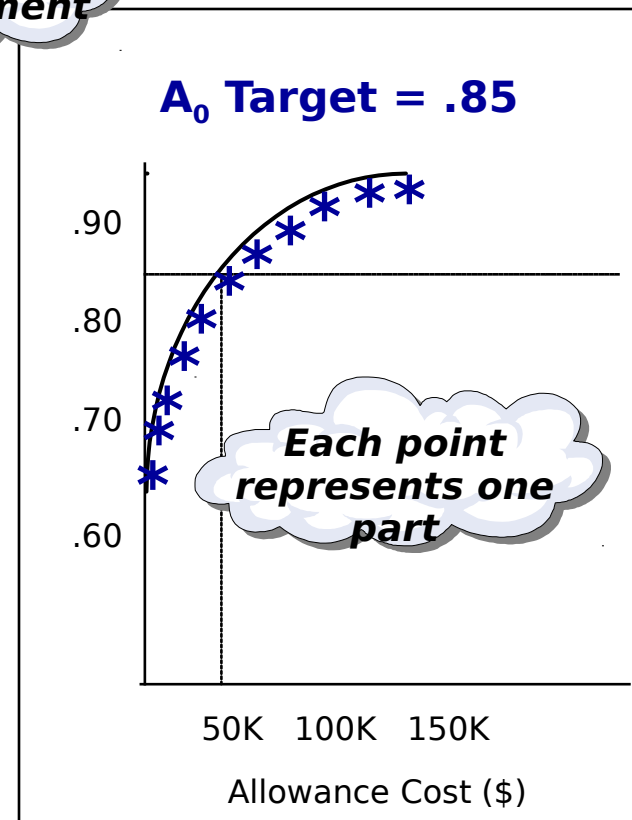
## RBS - How it works

- Breaks system into critical subsystems



- **Considers**
  - Operating scenario
  - Equipment maintainability, reliability, supportability
  - Part criticality and single point failure
- **Models components**
  - Redundancy
  - Contribution to  $A_0$  / dollar
- **Spares to achieve  $A_0$  goal (ORD) and cost**

Investment  
requirement

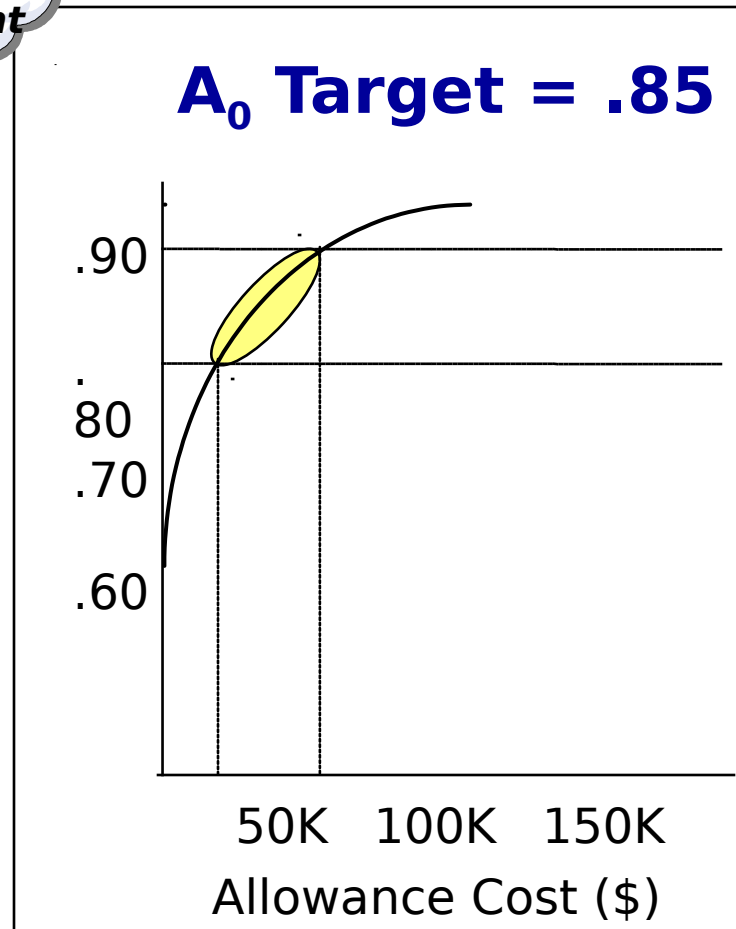


**Product and cost driven by  $A_0$  target and**

Investment  
requirement

## The Players

- **PEO/PM**
  - Funds RBS development ... engineering support ... A0 analysis
- **NAVSEALOGCEN & ICP**
  - Develop allowance products
- **RBS "Gatekeepers"**
  - NAVSUP/NAVSEA panel
  - Validates allowance product
  - Makes recommendations to PM
  - Optimizes financial investment within confines of the ORD



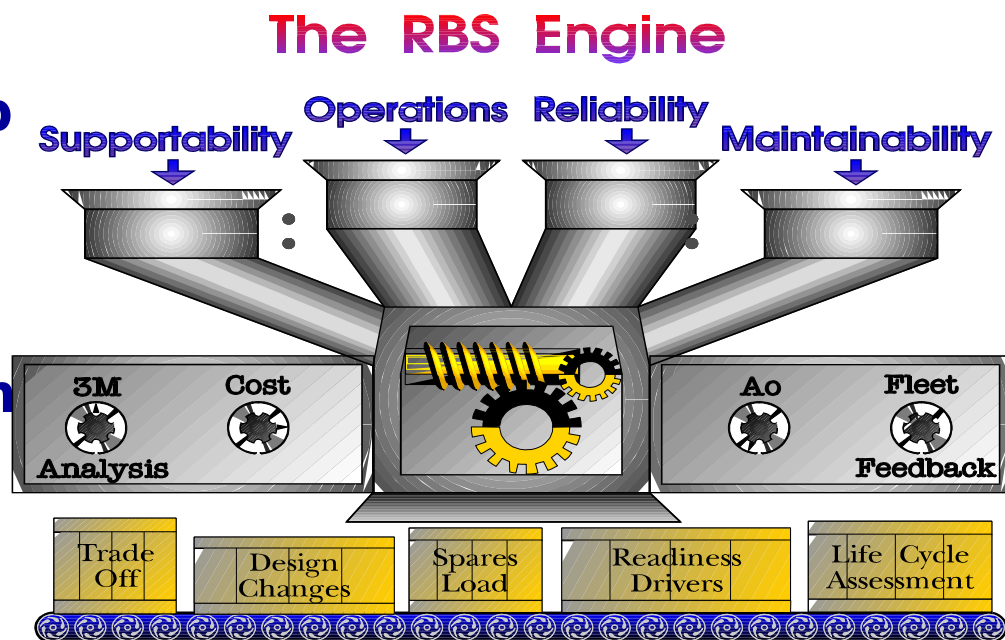
## Single Echelon RBS

- Assumes wholesale/offship response time (MRRT)

Surface      15 Days

Subs        45 Days

- Used for most RBS weapon systems





NAVAL SUPPLY SYSTEMS  
COMMAND

# 2 Mar 04 MAWG ME-RBS

3/2/04

## Multi Echelon RBS

- **Optimizes wholesale and retail (COSAL) investment**
- **Wholesale and retail linked by response time**  
MRRT = Shipping Time + Wholesale Delay Time
- **Ensures wholesale response time set to support Ao...no assumptions**
- **FY04 systems**
  - CEC (USG 2 & 3)
  - SPS-73
  - ASPARCS



CIWS     **\$14M**



USQ-82     **\$3M**



USC-38     **\$16M**



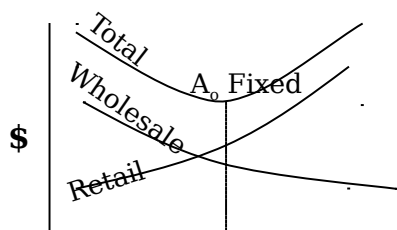
ROTHR     **\$9M**



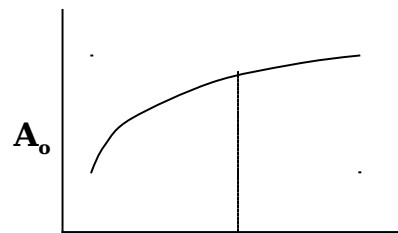
Machinery Control System  
(MCS)     **\$2M**

### Now

- Integrated spares computation methodology
- Balances wholesale & retail costs and operational availability
- Throughout the weapon system life cycle



**MRRT**  
Minimize inventory cost  
for a given  $A_o$  goal



Maximize  $A_o$  for a given  
inventory budget

### Next

- **ERP - exploring COTS ME/MI-RBS for aviation system**
  - Manugistics and MCA
  - Lack consideration for redundancy
- **Timeline - FY06 at the earliest**

## Single National Inventory

### ➤ **Concept**

- Integrate wholesale and retail...Afloat and Ashore
- Allowance fills are just stock positioning
- 100% visibility...excess visible but remains in place

### ➤ **Why**

- Support tailored to customer mission
  - Stock levels based on Ao/FMC requirement
  - Integrate support for all levels of maintenance
  - Multi-Echelon/Multi-Indenture RBS
- Improved readiness...fewer wholesale/retail gaps
- Improved costs....fewer wholesale/retail overlaps

### ➤ **Issues**

- Business rules for issues/repositioning assets owned by ICP but held by Fleet
- ERP Afloat & Ashore... “single accountable record” for asset visibility and access
- RBS optimization...Data dependant...accurate & complete
- “One color of money” ...Appropriated money required to position at customer



## **22 Oct 03 MAWG**

4. SUP 412 to review RBS modeling to change response time factors on two systems to determine impact on allowances and wholesale system support.



## **CIWS Block 1B**

### ➤ **Contractor supported...Raytheon**

- 90% Fill Rate and 13 Day avg response time

### ➤ **Initial RBS results**

- \$ 878K per ship to achieve 90% Ao....*not affordable*

### ➤ **Under consideration**

- Shipment of high priority material from ICP vendors to deployed ships via premium transportation
  - Reduces shipping times 3-5 days over AMC
  - Reduces RBS OBRP requirement
- Reduced RBS OBRPs thru OCONUS positioning of low demand high dollar repairables to reduce cost of spares while minimizing risk to Ao
  - Assumes 5 day shipping time from OCONUS site for parts required for critical corrective maintenance
- \$ 415.2K per ship plus \$358K per site (Sig & Yoko) to achieve about 86% Ao
- *RISK: If actual shipping time is 9 days (vice 5) Ao = 84.4%*

## **USC-38 (V) 9** (Single Ship Version)\_

### ➤ **Initial RBS results**

- \$ 10,700 per ship to achieve 90% Ao

### ➤ **Under consideration**

- Reduced RBS OBRPs thru OCONUS positioning of low demand high dollar repairables to reduce cost of spares while minimizing risk to Ao
  - Assumes 5 day shipping time from OCONUS site for parts required for critical corrective maintenance
- \$ 317 per ship plus \$ 10,400 per site (Sig & Yoko) to achieve 90% Ao
- *RISK: If actual shipping time is 8 days (vice 5) Ao = TBD*

## ➤ **CONCLUSIONS**

### ➤ **RBS**

- Considers operational use, reliability and redundancy, part criticality and cost
- Spares to achieve readiness goal and cost constraints
- Assumes wholesale response time

### ➤ **ME-RBS**

- Trade off wholesale stock and retail spares
- Ensures wholesale response time to achieve readiness goal

### ➤ **CIWS Block 1B Proposal**

- Use ashore assets at Yoko & Sig to reduce costs and maintain readiness

# BACKUP CHARTS

## **RBS**

- **Best for systems that ...**
  - Are solid state ... electronics
  - Have complex component relationships & redundancy
  - Have many parts/components
  - Have high part reliability, random failures
- **Examples ...**
  - AEGIS (SPY-1) Ao .24 with demand based; .91 with RBS
  - CIWS Ao .45 with demand based; .87 with RBS

## **.5 FLSIP**

- **Best for systems that...**
  - Are highly mechanical
  - Have simple component relationships
  - Have gradual, predictable failures
  - Have fewer parts
  - Have low part reliability
- **Examples ...**
  - Pumps & valves
  - Auxiliary equipment